



Rapid Sequence Intubation and Difficult Airway Management

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Overview

- Overview of RSI and Airway Management
 - What
 - Why
- Review of RSI Protocol
- What do I do if I get into trouble?
- EMS and RSI. – Does it help?

What is RSI?

- Not normal sequence intubation.
- Sedative
- Paralysis
- Simultaneously

Why RSI?

- More controlled environment
- Decrease risk of aspiration.
- Improve likelihood of successful intubation.
- Likely decrease overall risk of intracranial pressure (ICP) for head injury.
- Likely decreased risk of worsening ischemia.

Why RSI?

- To improve patient outcome!

Risks of RSI

- What if I don't get it?
- Risks from the sedation.
- Risks from the paralytic.

Types of Sedation

- Benzodiazepines
 - Diazepam, midazolam, lorazepam
- Opioids
 - Morphine, fentanyl, meperidine
- Hypnotics
 - etomidate
- Barbiturates
 - Phenobarbital, pentobarbital
- Neuroleptics
 - Ketamine, haloperidol, droperidol

Types of neuromuscular blockers

- Depolarizing
 - Succinylcholine
- Non-depolarizing
 - Vecuronium
 - Rocuronium
 - Many others

Premedication?

- Some belief that it may improve ICP
- Lidocaine 1.5 mg/kg
 - May reduce the ICP effect of direct laryngoscopy
- “Mini- dose” NMB (eg vecuronium 1mg)
 - Halts fasciculation which may reduce ICP.
- Controversial
 - Unknown if it really helps
 - Complicated procedure

RSI Procedure

- Should I do it?
 - Is there an indication?
 - Is this a reasonable airway?
 - Will I be able to get it done?
- Prepare
 - Preoxygenate
 - Assemble Equipment – including pulse ox, monitor
 - IV
 - Prepare drugs.

All set?

- Medications
 - Etomidate 0.3mg/kg
 - Paralysis
 - Succinylcholine 1.5mg/kg > 6years old
 - Succinylcholine 2.0mg/kg < 6 years old

What Now?



Do I bag?



Wait



Is patient relaxed?

- Now intubate!
- If having difficulty, or desaturation.
- Stop and bag.

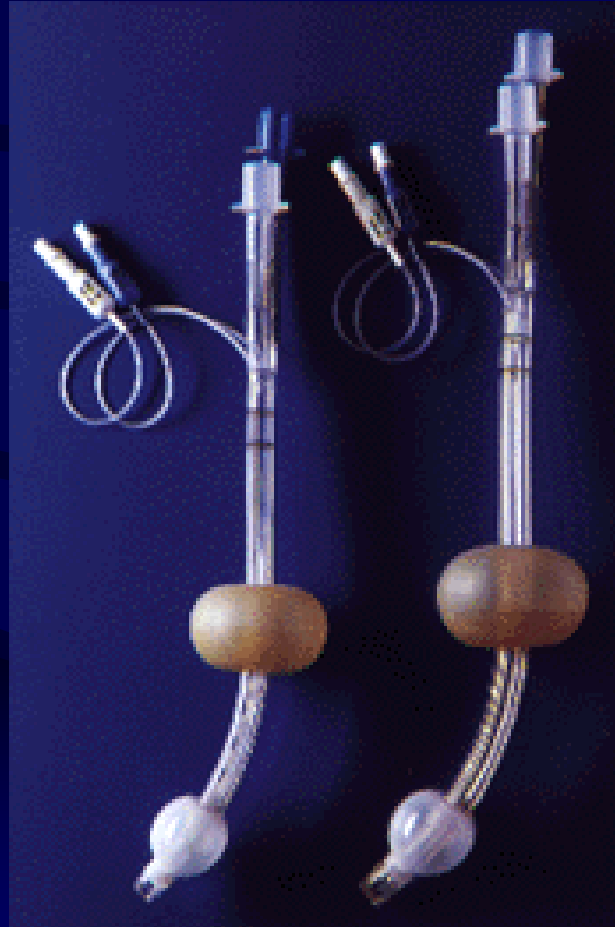
Ok, I missed. Now what?

- First try the simple things
 - Suction
 - Reposition
 - Change Blades
 - Change Operator

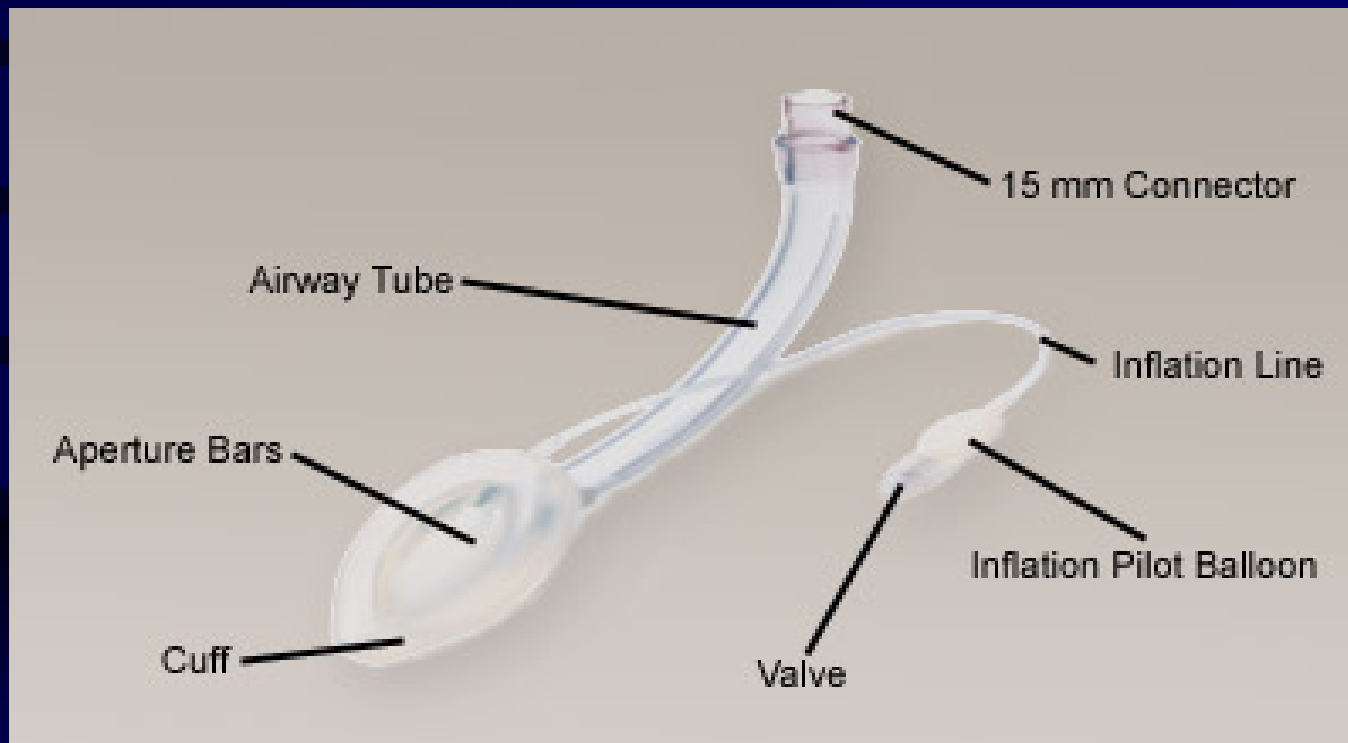
Adjunctive Devices



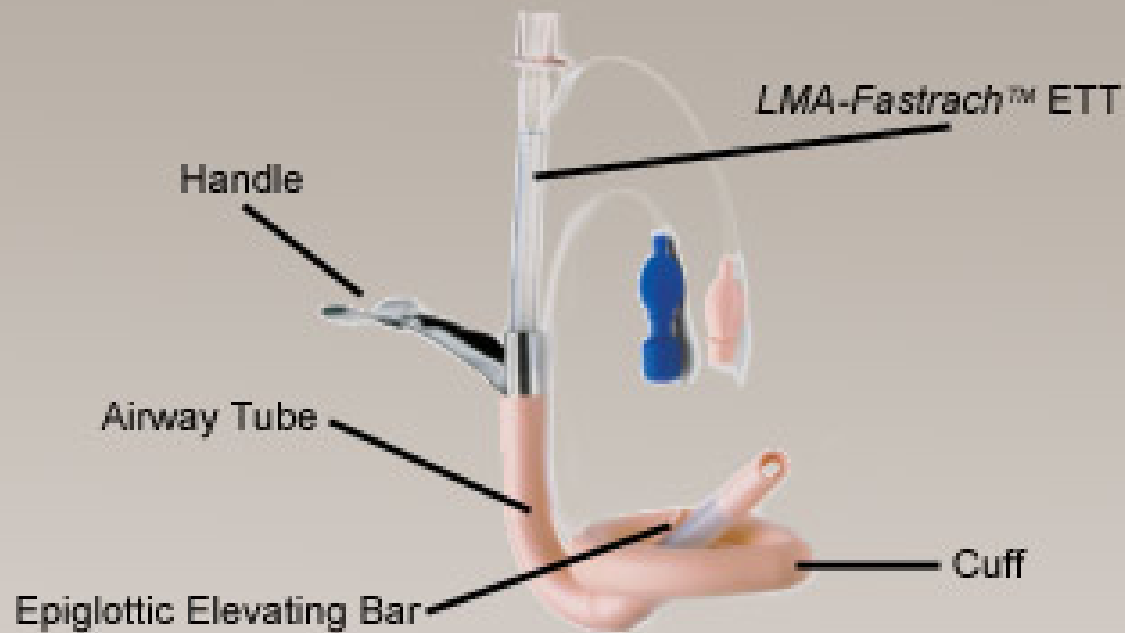
Adjunctive Devices



Adjunctive Devices



Adjunctive Devices



Last Effort



Don't Forget



I'm in!

- Confirmation by 2 methods
 - Auscultation
 - End-tidal CO₂ detector
 - End-tidal monitor
 - Esophageal Intubation Detector



How much do I ventilate?

- BVM vs Auto-vent
- Over-ventilation
 - Very frequent
 - Reduces cardiac output
 - May increase mortality
- One hand. (5-7 cc/kg with auto-vent)
- 8-12 breaths/minute
- Vary rate according to ETCO₂



Literature

- Prehospital use of succinylcholine: a 20-year review. Marvin Wayne. PEC 1999.
 - 95.5% success rate
 - 0.3% (6 total) unrecognized esophageal
- Paramedic-performed rapid sequence intubation of patients with severe head injuries. Mel Ochs. AEM 2002
 - 85% successful intubation rate
 - 15% Combitube
 - 0 unrecognized esophageal intubations
 - “Success” but no longer being done.
 - **INCREASED MORTALITY**

Literature

- Effect of Out-of-Hospital Pediatric Endotracheal Intubation on Survival and Neurological Outcome: A Controlled Clinical Trial. Marianne Gausche. JAMA
 - No difference in outcome for intubated vs. non-intubated
 - Only 57% intubation success rate in kids
 - Significant (statistical) difference in out-of-hospital time

Conclusions from the literature?

- There is NO direct evidence that prehospital intubation saves lives
- There is evidence that RSI may improve intubation success rates.
- Any prehospital RSI program needs strong CQI and medical oversight.

Questions/Discussion

- The goal of RSI is to improve the likelihood of getting the tube in while minimizing complications.
- There is a specific order/technique
- We do not have strong evidence that it is beneficial or harmful. Most medical directors in Oregon (and the country) still believe it is helpful.